

**Listing of Claims:**

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**Claims 1 to 3 (cancelled).**

**Claim 4 (previously presented)** A compound of claim 21 selected from the group consisting of 3-(3-dodecanoyloxytetradecanoylamino) 9-(3-hydroxytetradecanoylamino)-4-oxo-5-azadecan-1, 10-diol, the 1-dihydrogen phosphate thereof and the 1,10-bis-(dihydrogenphosphate) thereof, as well as the addition salts with an organic or a mineral base.

**Claim 5 (previously presented)** A compound of claim 21 selected from the group consisting of 3-(3-dodecanoyloxy-tetradecanoylamino) 9-(3-hydroxytetradecanoylamino)-4-oxo-5-azadecan-1, 10-diol 1,10-bis-(dihydrogenphosphate) and its addition salts with an organic or a mineral base.

**Claim 6 (previously presented)** A compound of claim 21 selected from the group consisting of 3-(3-hydroxytetradecanoylamino) 9-(3-dodecanoyloxytetradecanoylamino)-4-oxo-5-azadecan-1, 10-diol 1,10-bis-(dihydrogenphosphate) and its addition salts with an organic or a mineral base.

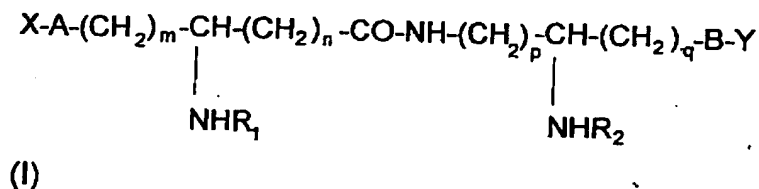
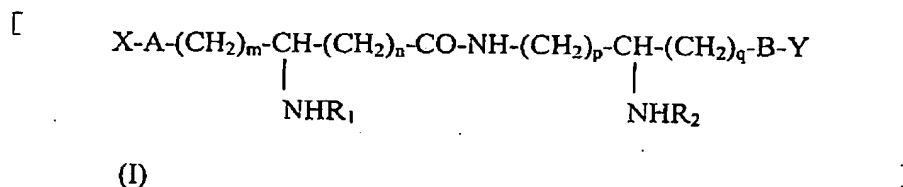
**Claim 7 (previously presented)** A compound of claim 21 selected from the group consisting of 3-(3-dodecanoyloxytetradecanoylamino) 9-(3-hydroxytetra-

decanoylamino)-4-oxo-5-azadecan-1, 10-diol mono 1-dihydrogenphosphate and its addition salts with an organic or a mineral base.

**Claim 8** (currently amended) A compound of claim 21 selected from the group consisting of 3-(3-hydroxytetradecanoylamino) 9-(3-dodecanoyloxy-tetradecanoylamino)-4-oxo-5-azadecan-1, 10-diol mono 1-dihydrogenphosphate and its addition salts formed with an organic or a mineral base.

**Claims 9 to 15** (cancelled)

**Claim 16** (currently amended) A pharmaceutical composition containing as an active ingredient at least one compound of the formula I in accordance with claim 21:



subscript n is an integer from 0 to 10,

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X and Y each designate ~~are~~ hydrogen or an acid group either in neutral or charged form,

A and B<sub>n</sub> are individually oxygen, sulfur or imino,

together or in admixture with a non-toxic, pharmaceutically acceptable, inert excipient or carrier.

**Claim 17** (currently amended) The pharmaceutical compositions in accordance with claim 16, wherein the compound of formula I is a compound of the type where X and/or Y designate a ~~are~~ phosphono radical and further A and B designate ~~are~~ an oxygen atom.

**Claim 18** (previously presented) The pharmaceutical composition in accordance with claim 17, wherein the active ingredient is in salt form with an organic or mineral base intended for therapeutic use.

**Claim 19** (currently presented) The pharmaceutical composition in accordance with ~~of~~ claim 16, wherein the active ingredient is in the form of a pure enantiomer or in the form of a mixture of stereoisomers.

**Claim 20** (cancelled)

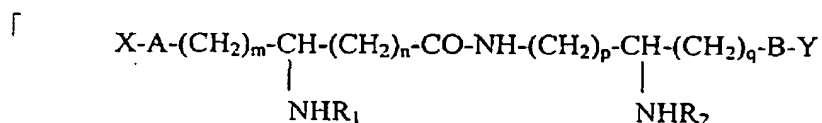
**Claim 21** (currently amended) A N-acyl-dipeptidic compound of the formula I:

**Claim 19** (currently presented) The pharmaceutical composition in accordance with of

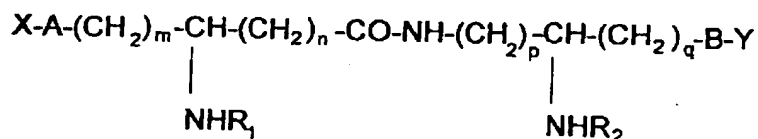
claim 16, wherein the active ingredient is in the form of a pure enantiomer or in the form of a mixture of stereoisomers.

**Claim 20** (cancelled)

**Claim 21** (currently amended) A N-acyl-dipeptidic compound of the formula I:



(I)



(I)

wherein R<sub>1</sub> and R<sub>2</sub> are each an acyl moiety of a saturated or unsaturated carboxylic acid of having from 2 to 24 carbon atoms unsubstituted or substituted with at least one member ~~selected from~~ of the group consisting of hydroxyl, alkyl and alkoxy of 1 to 24 carbon atoms, amino, acyloxy of an organic carboxylic acid of 1 to 24 carbon atoms and acylamino and acylthio of a carboxylic acid of 1 to 24 carbon atoms and alkylthio of 1 to 24 carbon atoms,

subscripts m, n, p and q are integers from 1 to 10,

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subscript n is an integer from 0 to 10,

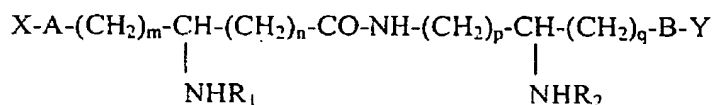
X and Y are independently hydrogen or an acid group selected from the group consisting of:

- carboxy  $[(C_{1-5})alkyl]$
- CH- $[(CH_2)_{m_1}COOH][(CH_2)_{n_1}COOH]$  with  $m_1 = 0$  to 5 and  $n_1 = 0$  to 5
- phosphono  $[(C_{1-5})alkyl]$
- dihydroxyphosphoryloxy $[(C_{1-5})alkyl]$
- dimethoxyphosphoryl
- phosphono
- hydroxysulfonyl
- hydroxysulfonyl $[(C_{1-5})alkyl]$
- hydroxysulfonyloxy  $[(C_{1-5})alkyl]$

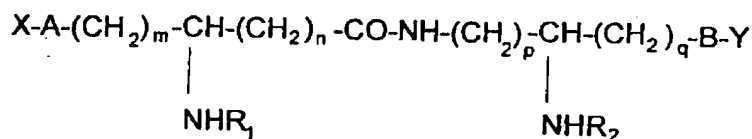
in neutral or charged form provided that at least one of the substituents X and Y is other than hydrogen, and A and B are individually selected from the group consisting of an oxygen atom, a sulfur atom and an imino group -NH-.

**Claim 22** (previously presented) A compound of claim 21 wherein at least one of X and Y is other than hydrogen in salt form with a non-toxic, pharmaceutically acceptable base.

**Claim 23** (currently amended) ~~A compound of~~ The compounds in accordance with claim 21 having the formula (I'):



(I)



(II)

wherein  $R_1$  and  $R_2$  are individually an acyl moiety derived from a saturated or unsaturated carboxylic acid of having from 2 to 24 carbon atoms, unsubstituted or substituted with at least one member ~~selected from~~ of the group consisting of hydroxyl, alkyl and alkoxy of 1 to 24 carbon atoms, amino, acyloxy of an organic carboxylic acid of 2 to 24 carbon atoms and acylamino and acylthio of an organic carboxylic acid of 2 to 24 carbon atoms and alkylthio of 1 to 24 carbon atoms,

subscripts m, p and q are individually integers from 1 to 10,

subscript n is an integer from 0 to 10,

and X and Y are individually a hydrogen atom or a phosphono group.

**Claim 24** (currently amended) A compound of general formula I of in accordance with  
claim 21 containing elements having an (R) or (S) configuration, or racemates thereof.

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**Claim 25-26** (cancelled)

**Claim 27** (previously presented) The process of claim 32 wherein the product of formula (I) is further reacted with an organic or mineral base to form the salt thereof.

**Claim 28** (currently amended) The process of claim 32 wherein the salt formation step is carried out with by means of a mineral or an organic base intended for therapeutic use.

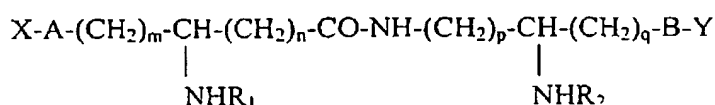
**Claim 29** (currently amended) The process of claim 32 wherein  $R_1[-]OH$  is 3-dodecanoyloxytetradecanoic acid.

**Claim 30** (currently amended) The process of claim 32 wherein  $R_2[-]OH$  is 3-hydroxytetradecanoic acid.

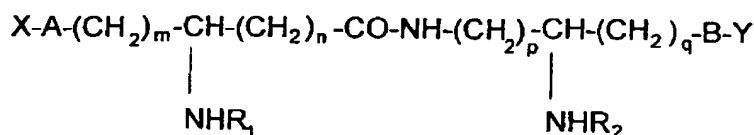
**Claim 31** (currently amended) A method of modulating immune response in warm-blooded animals comprising administering to warm-blooded animals in need of an immune response an amount of a compound of claim 21 ~~sufficient~~ efficient to modulate the immune response.

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**Claim 32 (currently amended)** The A method for obtaining a dipeptide-like compound of general formula I in accordance with of claim 21:



(I)



(II)

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wherein  $R_1$  and  $R_2$  each designate are an acyl moiety derived from a saturated or unsaturated, straight or branched-chain carboxylic acid of having from 2 to 24 carbon atoms, which is unsubstituted or substituted with at least bears one or several substituent substituent(s) selected from the group consisting of hydroxyl, alkyl, alkoxy, acyloxy, amino, acylamino, acylthio and ((C<sub>1-24</sub>)alkyl)thio,

wherein at least one of substituents  $R_1$  or  $R_2$  is an acyloxyacyl group,

subscripts m, p and q are integers from 1 to 10,

subscript n is an integer from 0 to 10,

X and Y each are designate a hydrogen or an acid group selected from the group consisting of:

- carboxy [(C<sub>1-5</sub>)alkyl]



- CH-[(CH<sub>2</sub>)<sub>m1</sub>COOH] [(CH<sub>2</sub>)<sub>n1</sub>COOH] with m<sub>1</sub> = 0 to 5 and n<sub>1</sub> = 0 to 5

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- phosphono [(C<sub>1-5</sub>)alkyl]
- dihydroxyphosphoryloxy[(C<sub>1-5</sub>)alkyl]
- dimethoxyphosphoryl
- hydroxysulfonyl
- hydroxysulfonyl[(C<sub>1-5</sub>)alkyl]
- hydroxysulfonyloxy [(C<sub>1-5</sub>)alkyl]
- phosphono

either in neutral or charged form,

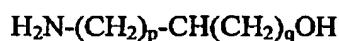
provided that at least one of the substituents X and Y is designates an acid group as specified above, either in neutral or charged form,

A and B have the same meanings as specified above,

wherein the amino functional groups in positions (q+1) and ω of a diamino acid of formula H<sub>2</sub>N(CH<sub>2</sub>)<sub>p</sub>CHNH<sub>2</sub>(CH<sub>2</sub>)<sub>q-1</sub>COOH are blocked by a blocking reagent which undergoes acidolysis and hydrogenolysis; respectively, the carboxylic functional group still in free form is reacted with a reducing agent to yield the corresponding alcohol, the amino functional group in position (q+1) is freed and then acyl-substituted with by means of a carboxylic acid functional derivative of formula R<sub>2</sub>OH,

wherein R<sub>2</sub> is as defined above,

the terminal amino functional group is subsequently freed by hydrogenolysis to yield a diamino alcohol of the general formula II



(II)

wherein  $R_2$  is designates an acyl group derived from a saturated or unsaturated, straight or branched chain carboxylic acid of having from 2 to 24 carbon atoms, which is unsubstituted or ~~substituted by at least~~ bears one or several ~~substituent~~ substituents as defined above,

p and q designate ~~are~~ an integer from 1 to 10,

said diamino alcohol is condensed in the presence of a peptide condensing agent in an inert solvent together with a carboxylic acid selected from the group consisting of a  $\omega$ -hydroxy-amino acid, a  $\omega$ -amino-amino-acid and a  $\omega$ -thio amino acid of the general formula III



(III)

wherein  $R_1$  is designates an acyl group derived from a saturated or unsaturated, straight or branched chain carboxylic acid of having from 2 to 24 carbon atoms, which is unsubstituted or ~~substituted by at least~~ bears one or several ~~substituent~~ substituents as defined above

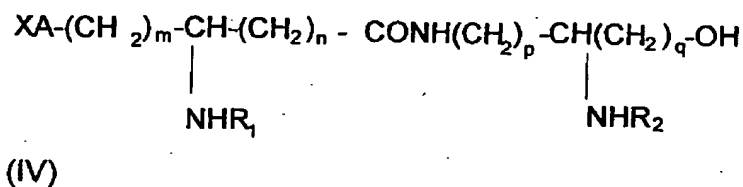
m is an integer from 1 to 10,

n is an integer from 0 to 10,

~~A is an oxygen, sulfur atom or an imino group NH~~

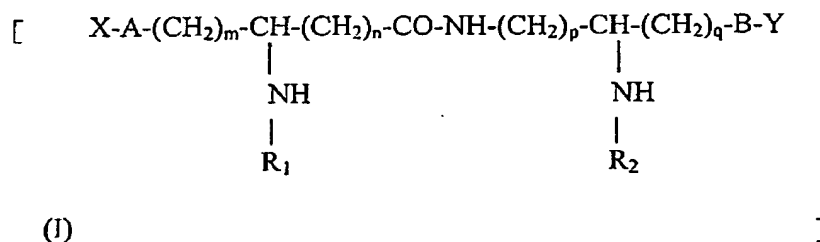
and X is an acid radical as specified previously which is optionally in an ester form

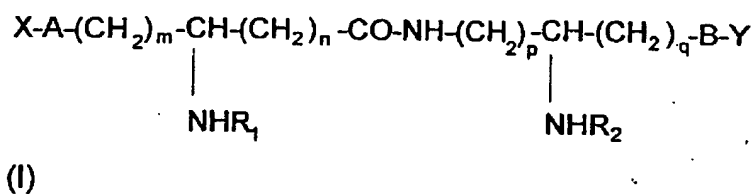
to yield a dipeptide-like compound of the general formula IV



wherein the substituents and subscripts  $R_1$ ,  $R_2$ , n, m, p and q have the same meanings as specified above,

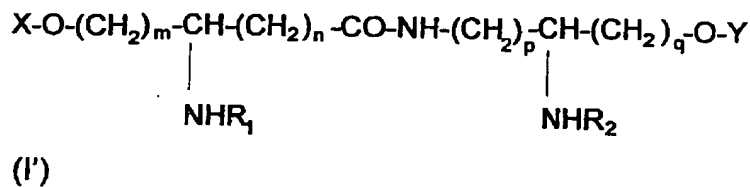
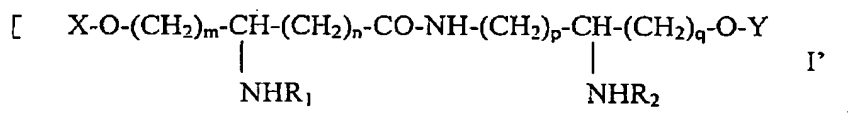
the alcohol functional group of which is alkylated or acylated or otherwise substituted by an alkylating or acylating or an otherwise substitution reagent, in the presence of a coupling agent, and subjected to a catalytic hydrogenation or some other deprotection method, to obtain the a-compound derivative of the general formula I





wherein substituents and subscripts A, B, X, Y, R<sub>1</sub>, R<sub>2</sub>, n, m, p and q have the same meanings as those given above.

**Claim 33 (currently amended)** A method for obtaining a phosphodipeptide-like compound of the general formula I' in accordance with claim 23



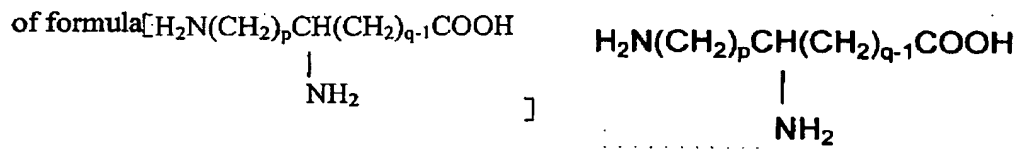
wherein  $R_1$  and  $R_2$  each ~~are~~ designate an acyl group derived from a saturated or unsaturated, straight or branched chain carboxylic acid having from ~~of~~ 2 to 24 carbon atoms, which is unsubstituted or ~~substituted by at least~~ bears one or more substituent substituents selected from ~~the group consisting of~~ hydroxyl, alkyl, alkoxy, acyloxy, amino, acylamino, acylthio and  $((C_1-C_{24})\text{alkyl})\text{thio}$  group,

subscripts m, p and q are integers from 1 to 10,

subscript n is an integer ranging from 0 to 10,

X and Y each ~~are~~ designate a hydrogen atom or a phosphono group either in neutral or charged form,

wherein the amino functional groups in positions (q+1) and  $\omega$  of the diamino acid of formula



are blocked by blocking reagents which undergo acidolysis and hydrogenolysis, respectively, the carboxylic functional group still in free form is reacted with a reducing agent to yield the corresponding alcohol, the amine functional group in position (q+1) is freed and then acyl-substituted by means of a carboxylic acid functional derivative of formula  $R_2\text{OH}$

wherein  $R_2$  is as defined above,

the terminal amino functional group is subsequently freed by hydrogenolysis to yield the amino-alcohol of ~~the~~ general formula II,

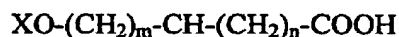


(II)

wherein  $R_2$  is designates an acyl group derived from a saturated or unsaturated, straight or branched chain carboxylic acid ~~of~~ having from 2 to 24 carbon atoms, which is unsubstituted or ~~substituted by at least~~ bears one or several ~~substituent~~ substituents as specified above,

p and q are designate an inter from 1 to 10

said amino-alcohol is condensed in ~~the~~ presence of a peptide condensing agent in an inert solvent together with a  $\omega$ -hydroxy amino acid derivative of ~~the~~ general formula III':



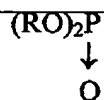
(III')

wherein  $R_1$  is an acyl group derived from a saturated or unsaturated, straight or branched chain carboxylic acid ~~of~~ having from 2 to 24 carbon atoms, which is unsubstituted or ~~substituted by at least~~ bears one or several ~~substituent~~ substituents as specified above,

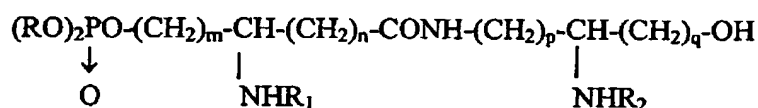
m is an integer from 1 to 10,

n is an integer from 0 to 10,

and X is a dialkyloxy- or diaryloxy-phosphoryl radical of ~~the~~ formula



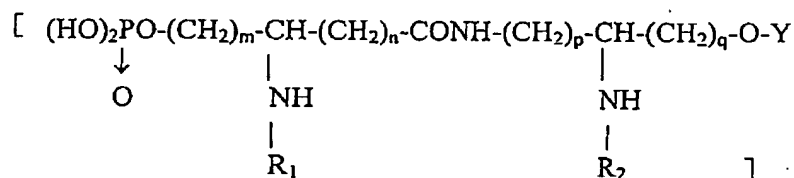
to yield the peptide-like compound of the general formula IV'



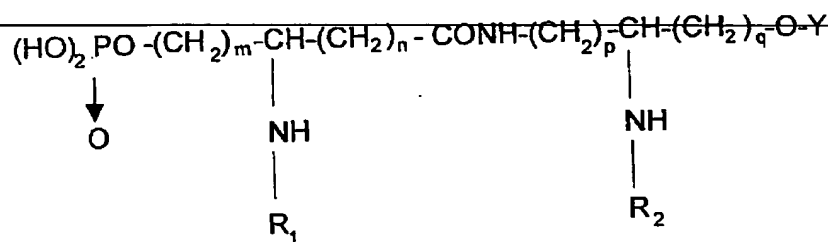
(IV')

wherein substituents  $R_1$ ,  $R_2$ ,  $m$ ,  $n$ ,  $p$  and  $q$  are as defined above, and  $R$  is a group radical which undergoes hydrogenolysis or hydrolysis,

the alcohol functional group of which can be phosphorylated by a phosphorylating agent in the presence of a coupling agent and subjected to a two-step steps catalytic hydrogenation in order to unblock the alcohol functional group optionally present on the acyl group  $R_2$  and the phosphate functional group and the second optionally present phosphate functional group of which, can be subsequently unblocked by hydrogenolysis, in order to obtain a compound the derivative of the general formula V



(V)



(V)

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wherein Y is designates either a hydrogen atom or a phosphono group and the substituents R<sub>1</sub>, R<sub>2</sub>, m, n, p and q have the above-given definitions.



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